



## SUMMARY OF STATEMAP GEOLOGIC MAPPING PROGRAM IN MONTANA – March 2005

Federal Fiscal Year	Project Titles – Scale	State Dollars	Federal Dollars	Total Project Dollars
1993	Bedrock geology of Conrad, Chester, Lonesome Lake, Sweet Grass Hills, Winifred – 1:100,000; Teepee Mountain – 1:24,000	\$159,923	\$105,000	\$264,923
1994	Bozeman – 1:100,000; Metropolitan Billings – 1:48,000	\$123,139	\$110,000	\$233,139
1995	Bedrock geology of Billings, Bridger, Hamilton, Nez Perce Pass – 1:100,000	\$65,492	\$40,000	\$105,492
1996	Bedrock geology of Butte – 1:250,000; Glendive, Plentywood, Culbertson, Scobey, Wolf Point, Lodge Grass, Hardin – 1:100,000; Bitterroot Valley – 1:48,000	\$130,961	\$120,000	\$250,961
1997	Bedrock geology of Leadore, Missoula West – 1:100,000	\$129,162	\$120,000	\$249,162
1998	Bedrock geology of Malta, Glasgow, Winnett, Lewistown, Musselshell, Gardiner, Wallace – 1:100,000	\$151,182	\$120,000	\$271,182
1999	Bedrock geology of Great Falls South, Roundup, Livingston, Big Timber, Lima – 1:100,000	\$100,430	\$100,000	\$200,430
2000	Bedrock geology of Harlowton, Red Lodge, Forsyth, Lame Deer, Birney, Miles City, Powderville, Broadus, Baker, Ekalaka, Alzada – 1:100,000	\$100,319	\$100,000	\$200,319
2001	Bedrock geology of Winifred, Zortman, Dodson, Opheim, Sweet Grass Hills, Conrad, Chester, Lonesome Lake, Belt, Rocky Boy, Valier, Cut Bank, Great Falls North, Fort Benton – 1:100,000; Gallatin Valley East – 1:50,000	\$235,105	\$234,809	\$469,914
2002	Bedrock geology of Whitewater, Harlem, Havre, Richey, Circle, Sidney, Wibaux, Terry, Philipsburg -1:100,000; Gallatin Valley West, Paradise Valley – 1:50,000; Hellgate Gulch – 1:24,000	\$220,302	\$220,000	\$440,303
2003	Bedrock geology of Fort Peck Lake E, Fort Peck Lake W, Hysham, Angela, Ringling – 1:100,000; Jefferson Valley, Divide-Melrose Area, Upper Clark Fork – 1:50,000; Kelly Lake, Dickie Hills – 1:24,000	\$196,445	\$196,445	\$392,890
2004	Bedrock geology of Sand Springs, Jordan, Melstone – 1:100,00; Red Lodge Area, Clark Fork Valley, Three Forks/Lower Madison Area – 1:50,000; Lozeau, Tarkio, Lost Trail Pass Area – 1:24,000	\$162,007	\$162,077	\$324,154
2005	Bedrock geology of Stark South, Goldstone Pass Area – 1:24,000; Three Forks/Lower Madison Area, Lower Clark Fork Valley – 1:50,000	\$121,100	\$121,034	\$242,134
<b>TOTALS</b>	73 – 1:100,000 quadrangles; 9 – 1:24,000 quadrangles; 14 others	<b>\$1,081,708</b>	<b>\$936,034</b>	<b>\$2,017,742</b>

The availability of geologic information for Montana has been significantly advanced by Montana Bureau of Mines & Geology's (MBMG) participation in the STATEMAP part of the National Cooperative Geologic Mapping Program (NCGMP). The initiation of this Program in 1992 was very timely for MBMG because we had just committed to providing updated geologic maps for the entire state, a goal now about three-quarters complete.

Water has always been a primary issue in Montana. Assessment, management and protection of both surface and ground water require good geologic maps. As the state undergoes major demographic changes and the related major shifts in land use, the need for adequate geologic information is even more critical for all the state's resources, land area, and citizens. Modern geologic maps, at a useful scale, are in great demand—by state and federal agencies responsible for management of Montana's water, energy, timber, and minerals; by county and municipal agencies responsible for land-use planning decisions on such matters as residential sites, highway routing, and waste disposal; and by economic-resource developers who must delineate and produce commodities in an environmentally acceptable manner. The maps are being used in ground-water characterization, earthquake hazard evaluation, burn-area remediation, abandoned-mines assessment, location of sand and gravel resources, and many other land- and resource-use issues across the state. Because of the universal need for new

maps, MBMG has focused its efforts first at generating coverage for the entire state at a scale of 1:100,000 (1 in. = 1.6 mi.). A second effort, also underway, focuses more locally on the state's urban centers and western valleys that are facing immediate concerns at the interface of available resources and increasing population.

MBMG's production of geologic maps is about 50% dependent upon the funding received through the National Cooperative Geologic Mapping Program. In this 1:1 matching program, MBMG contributes the salary dollars of the geologists; NCGMP dollars provide the geologists' field expenses and the digital expertise to produce the work

ONE RECENT OUTCOME has been the use of MBMG's bedrock geologic map of the metropolitan Billings area to derive geologic hazard maps of the same area. These maps prompted the City of Red Lodge to request a large-scale map of that city's geology—STATEMAP 2004 is now supporting that work. Because MBMG's geologic maps are available on-line, agencies, companies, drillers, ranchers, attorneys, and others have immediate access to the information. Consequently, MBMG may have no knowledge of many additional map uses and outcomes.